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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,696	07/22/2003	Arno Sommer	02/045 SGL	7044
23416	7590	12/01/2006	EXAMINER	
CONNOLLY BOVE LODGE & HUTZ, LLP			LOPEZ, CARLOS N	
P O BOX 2207			ART UNIT	
WILMINGTON, DE 19899			PAPER NUMBER	
			1731	

DATE MAILED: 12/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/624,696

Applicant(s)

SOMMER ET AL.

Examiner

Carlos Lopez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/2/06.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 10 and 11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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Response to Amendment

The amendment filed on 10/2/06 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heine et al (US 6,030,913) in view of Krenkel et al (US 6,086,814). Heine discloses a method of making a composite C/C material for use as brake material (Col. 1, lines 51). The method as noted in example 1, provides a green body introducing fiber material (graphite fibers) impregnated with a binder into a mold, the filled mold is then pressed at a pressure of 10 to at most 30 bar (see Col. 5, line 60), curing the fiber containing composition as noted in example 1 at a temperature of 140°C and then carbonizing the green body in a non-oxidizing atmosphere comprised of nitrogen at a temperature of 900°C.

Heine is silent disclosing adding compressible cores to the pressing molding composition that is added to the mold.

However, Krenkel teaches that adding cores made of foamed polymer (See Col. 2, lines 55-60) are used to provide cavities and or recesses in certain internal or external

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areas for cooling or reinforcement purposes of the frictional elements, i.e brakes (See Abstract). As noted by Krenkel, the recess or cavities to be made on the resultant brake material are done by the addition of the core when the molding composition comprised of the claimed fiber and binder (and/or foreproduct as referred by Krenkel), can be shaped both mechanically and in a molding manner (See Col. 2, lines 39ff). Thus Krenkel clearly envisage the use of cores to produce recess or cavities on the greenbody prior or during when the molding composition can be mechanical shaped, hence when it is in the mold, as instantly claimed by applicant.

At the time the invention was made it would have been obvious to a person of ordinary skill in the art to have used the cores of Krenkel in molding the ceramic green body of Heine in order to provide cavities and or recesses in certain internal or external areas for cooling or reinforcement purposes of the frictional elements.

It is noted that the material forming the core is made of foamed polymer (See Krenkel Col. 2, line56) more specifically a styropor, a foamed polysterene, which is used by applicant in page 10 lines 15-24 of the instant filed specification as the material forming the core. Hence, it would have been obvious to a person of ordinary skill in the art to have expected the foamed polymer core of Krenkel to be compressed at least 5% and be able to be pyrolized and or reduction in volume during pyrolization during the carbonization step 5 in view that is made from the same material as claimed and that the pressure acted on by the mold of Heine is 30 bar, 30 times the atmospheric pressure, sufficient to compress the core at the very least 5%.

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As for claim 2 and 8, see Col. 6, lines 27ff noting impregnation and carbonization to form carbides.

As for claim 3, example 1 notes curing at 140°C.

As for claim 4, example 1 notes the third and fourth steps occurring at the same time.

As for claim 5, by definition styropor is foamed polymer in a sandwich like structure whose exterior layer is a hard polymer made of a styrene polymer having a melting temperature of 160°C which is above the curing temperature of 140°C.

As for claims 6-7, Col. 5, lines 5-10 discloses fiber length of 1mm having a weight % of 18 or above, meaning the mean fiber length, being 50% can be 1mm in length.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heine et al (US 6,030,913) in view of Krenkel et al (US 6,086,814) and in further view of Sangeeta et al (US 5,628,938). Heine and Krenkel are silent disclosing a using silicon alloy for infiltration. However, Sangeeta in Col. 11, lines 45ff teaches of using silicon alloys such as molybdenum-silicon alloy to infiltrate a C/C body to form silicon carbides. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use molybdenum-silicon alloy to infiltrate a C/C body as taught by Sangeeta with the combined teachings of Krenkel and Heine in order to provide an alternate source of silicon to form silicon carbide.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-4 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 of copending Application No. 10/741,374 ('374). Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 1 of '374 discloses the claimed first to fifth steps wherein the core is a compressible core that is compressed by at least 5% of its dimension in the pressing direction.

As for claim 2, claim 2 of '374 infiltrated the C/C body with a liquid metal.

As for claim 3, the claimed curing temperature is recited in claim 3 of '374.

As for claim 4, claim 4 of '374 that the third and fourth steps can be done simultaneously or partly overlapping in time.

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This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

Applicant's arguments filed 10/2/06 have been fully considered but they are not persuasive. Applicant argues that "foamed polystyrene may exist in different qualities, having different compressibility, and only such polystyrene foams obeying to the condition set forth in claim 1, i.e. those having a compressibility leading to a length change in the pressing direction of at least 5 %, at a pressure applied of from 0.1 MPa to 50 MPa, can be used for the present invention."

However, in view that the applied reference uses the same material, and presses the materials using a pressure that is 30 times greater than that applied by applicant a person of ordinary skill readily reasons that the cores would be compressed. Applicant has not rebutted the prima facie case that a core made of similar materials as claimed by applicant and being pressed at a pressure that is 30 times greater than applicant, can and/or at least compress by 5%. Applicant has only provided allegations that the reference does not compress the core with out any submission of evidence and/or reasoned arguments to support applicant's allegation that the cores of the applied reference does not compress.

In response to applicant's arguments regarding the rejection of claim 9, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208

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USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Lopez whose telephone number is 571.272.1193. The examiner can normally be reached on Mon.-Fri. 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571.272.1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


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